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Declass Review by NIMA/DOD

8 January 1965
Ref: LJC 75-1445

Post Office Box 6788
Fort Davis Station
Washington 24, D. C.

25X1A Attention: [redacted]
Contracting Officer

25X1A Subject: [redacted]

Enclosure: (1) Five (5) Copies Monthly Progress Report No. 3, dated 15 December 1964 Log No. 105-64-29 - Copies 2, 3, 4, 5, and 6

Gentlemen:

In accordance with the report requirements of the subject contract, we are transmitting herewith Monthly Progress Report No. 3 for the report period of 1 November through 15 December 1964.

We trust that this report is complete for your requirements. However, if any additional information is desired, please feel free to contact the undersigned.

Very truly yours,

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[redacted]
Contracts Administrator

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Encs. (5)

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"This Document contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law."

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COPY NO. 2

105-64-30

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PROJECT 105

MONTHLY PROGRESS REPORT NO. 3

15 December 1964

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Prepared by [redacted]

Approved by [redacted]

Section Manager
Data Processing Section

COPY NO. 3

LOG NO. 105-64-29

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Monthly Progress Report No. 3
15 December 1964

INTRODUCTION

This report covers the status of work accomplished on the 105 Program for November through December 15th.

During the month of November the design as visualized in the two previous reports was investigated more thoroughly. No major design changes occurred during this period. All components were released to the shop for fabrication and were anticipated back by the end of November. There was a slight delay in some of these components but all were received by the 10th of December. Final fabrication of all breadboard units were started by the 10th of December. Some breadboarding had already received preliminary testing and the remaining components will be debugged and testing started by the end of December.

GENERAL CONFIGURATIONS

No major changes have occurred in the general configurations of the overall unit. Preliminary design work has been started on the overall layout. An investigation is under way to substantiate those items which will be displayed on the control panels. Full information is still not available on the chip holder or chip magazine. However, we are proceeding as requested based upon the visual observation we saw last August. Assuming this has not changed, we do not anticipate any major changes in this area, unless a radical departure from the early design occurs. It is our understanding that detailed design prints of these two items will be furnished by January 15th. We are also assuming a general type structure for the final chip magazine holder. This structure is based purely upon guess as we have nothing else. It should be noted that neither of these items are holding up our present effort, but some changes may be required at a later date.

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[redacted] Monthly Progress Report No. 3
15 December 1964

MAGAZINE CONFIGURATION

As anticipated in last month's Progress Report all components were released for fabrication of the magazine. These components were all finished by the 30th of November. Assembly is now on the way and this particular item will start testing sometime during the month of December. A flushing or a spritzer method of wetting the film in the liquid gate is now being adapted to the magazine breadboard. All consideration shows that from economy of solutions, personal safety, or rapid drying, this should be the cleanest approach. The magazine breadboard is now in a state of being assembled on the overall drive breadboard. Facilities are being incorporated so that at a later date actual test prints can be made from this breadboard.

DRIVE SYSTEM

The drive system which was previously successfully checked for the velocity control system is now undergone rework and an investigation for the tape positioning control is now being tested. Although these tests are not complete, positional repeatability has been satisfactorily proven to hold to within one count of the shaft encoder and the control counter. Actual positioning from a starting point is now being checked. At the present moment this is being hampered by a servo oscillation. It is anticipated that the digital drive system and the velocity drive system will be married together and testing completed near the end of December.

FILM RESOLUTION

Optical Considerations

Testing in Phase I has been completed in the optical or film resolution system. A trip with the Customer's technical representative to [redacted] earlier this month answered a good many technical

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questions. However, later during the month it became quite apparent to us here that a panchromatic film could be utilized rather than an ortho film with possible additional advantages, such as higher resolution and a faster film speed. Contact was made with both the Customer's technical representative and Eastman Kodak to find out if this was indeed so, and would we sacrifice anything to additional graininess or a loss of acuity. Eastman Kodak has informed us that a panchromatic emulsion may be utilized without loss of quality. They do not object to [redacted] however, they do point out that with a transfer function of approximately 35% we may anticipate 200 lines per millimeter in [redacted] However, we will have a hard time controlling contrast which will tend to be extreme, especially if developed in [redacted] which would be the favorable tank developer. They advise, therefore, a film like [redacted] which is comparable to a moving picture production film with a panchromatic emulsion. With the transfer function down to 30%, we should receive approximately 200 lines per millimeter and it is understood that existing chemistry, which can be easily handled in automatic machinery, is available. It was further pointed out that if necessary, [redacted] could have a panchromatic emulsion. It was not anticipated this would sacrifice either resolution or acutance.

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ELECTRONICS SYSTEM LOGIC

Work considered during this period was to complete the systems logic and necessary Phase I wiring diagrams and schematics which would be necessary for actual wiring of the breadboard for the positioning of the X System and magazine drive system. The wiring was completed on the X drive and testing started. A good deal of time was expended due to several oscillations which had to be corrected. The usual debugging problems also occurred in

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mating the digital input system to the velocity drive system. Most of these problems have been solved, the remaining are still being investigated. It is anticipated that a complete breadboard will be operating and running in its final form sometime in the latter part of December. A thorough investigation has now been made of the electronics necessary for the magazine from a hardware point of view with actual components selected. Although all of these circuits will not be breadboarded in Phase I, an analysis was necessary in Phase I in order to insure that all items can be correctly controlled in Phase II.

DATA RECORDING

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Work has been consistently continued in the data recording area over the increased scope that was reported in the last progress report of Appendix A and has caused considerable problems. In the hopes of utilizing the same [redacted] equipment that we discussed previously, a trip was made to Pennsylvania to discuss the necessary changes which would be required. It soon became apparent that the new requirements were beyond the scope of the work they were willing to undergo on these existing equipment.

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[redacted] detailed layouts in all areas including the magazine, drive system, the overall console, the control panels, the systems electronics, vacuum systems, etc. are under way. We are still running on an extremely tight schedule. However, overall, there is no reason to believe that this entire report will not be finished by January 30th.

PROJECTED WORK ON NEXT MONTHLY PERIOD

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[redacted] therefore, has considered construction of the entire unit and present design efforts indicate a simpler unit based upon similar principles for our exact requirements. We will now

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deliver as part of the final report two approaches, first of all the mechanical approach discussed above and secondly, a method using [redacted] silicon transistor light pulser. The advantages of both will be pointed out as well as the disadvantages. Both approaches will be presented only because of the growth potential of one over the other.

CURRENT STATUS OF WORK AND PROBLEM AREAS

At the present moment all breadboards are being completed. Testing in some cases has been completed and in all other areas under way. Final testing will be completed during the month of January.

The projected work for the next reporting period will be to complete all necessary testing, to establish all design parameters, and to complete the Final Report for Phase I.

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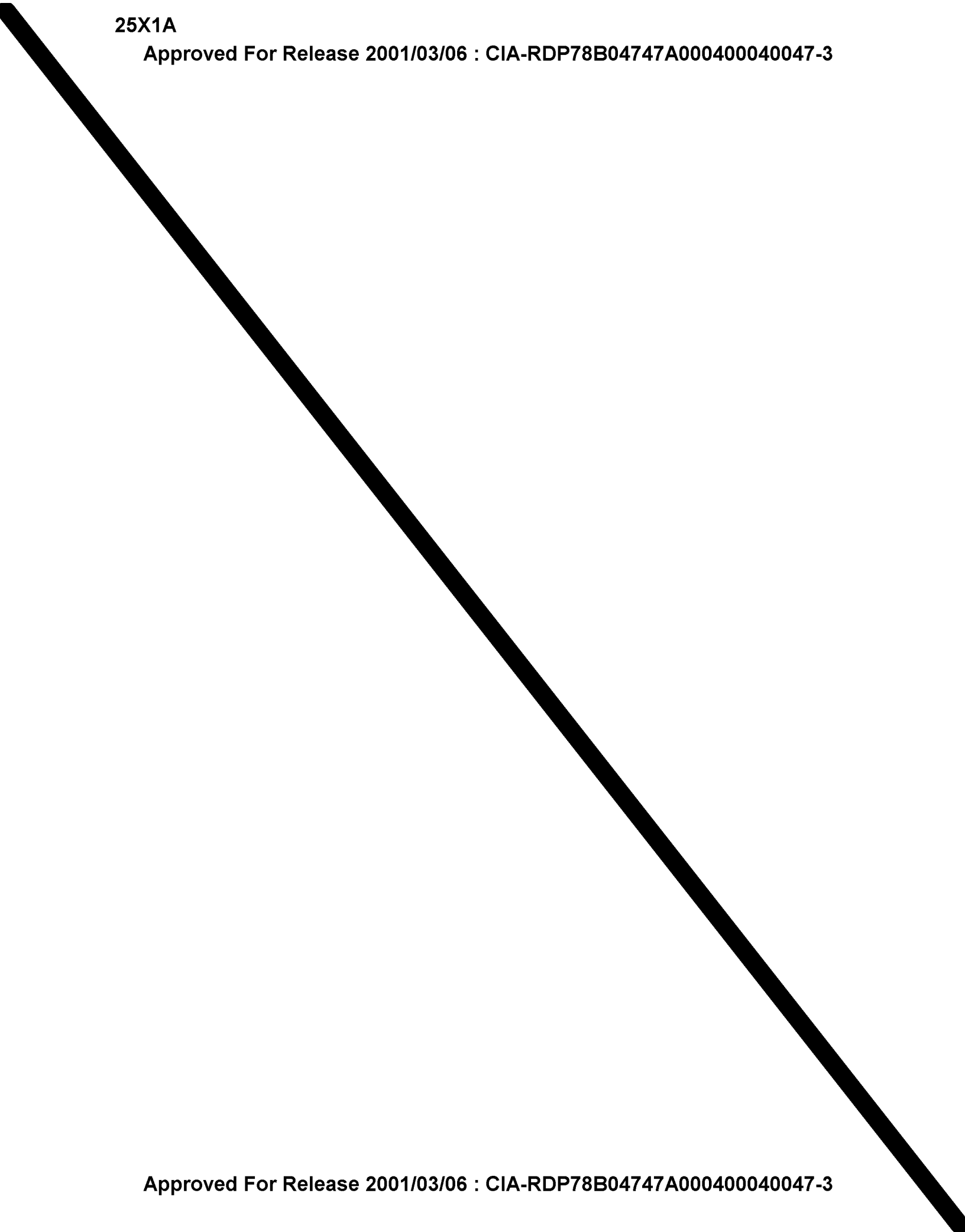

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